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ABSTRACT

In order to identify the instructional techniques instructors have found to be effective in various courses, to obtain their views on other instructional techniques, and to collect suggestions on how instruction can be further improved, a survey was conducted of a representative sample of De Anza College (California) faculty. A questionnaire was sent to each of the 43 participants prior to an interview with a representative of the Institutional Research Office. The diversity of faculty views on the instructional process is attributed to intrinsic differences in subject matter, tradition, differing skills, unexamined assumptions, organizational constraints, and the lack of a common framework for conceptualizing the instructional process. Questions were grouped into four different areas: (1) instructional techniques, including manner of presentation, and audiovisual support; (2) instructional intentions, covering the provision of a statement of course goals, and faculty expectations; (3) motivation, covering requirements satisfied, grading, and course requirements; (4) suggestions for improvement. It is hoped that refinement of the views reported here can be the basis for developing a common framework for conceptualizing the teaching/learning process on which specific improvements can be built. (Author/NHM)

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INSTRUCTION AT DE ANZA: A Sampling of Faculty Opinion

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The Learning Center, De Anza College

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JC 760 003

INSTRUCTIONAL TECHNIQUES AT DE ANZA

INTRODUCTION

This report presents information obtained in interviews with 43 faculty members. Four others reviewed a draft questionnaire by participating in an interview based on it. Their comments helped to produce the form of the questionnaire which was used (copy attached).

The major aim of the survey was to record views of instructors and present them "as an aid to developing feasible actions which will effectively help De Anza faculty to improve instruction". The questionnaire was sent to each participant before the interview. Each respondent was asked to focus on how he or she teaches a particular course, not about the instructional process in general.

During the planning of the survey it was recognized that an instructor's use of a particular method from among a variety of alternative ways of handling elements of the instructional process would depend in part upon his subject matter. In addition it was assumed that many less clearly identified variables would also influence his choice. Because of this uncertainty as to which variables are meaningful, it was felt that collection of as much non-statistical information about the various ways faculty members conceptualize the teaching/learning process would be more useful than to attempt statistically valid sampling. Instructors from all divisions were interviewed, of course, to ensure that views covering the full spectrum of instructional situations were obtained, but the small amount of quantitative data reported below is very tentative. When there is uncertainty over exactly what "things" are being counted and added together, numbers can give a spurious impression of significance and that is surely the case with something as complex and imprecisely analysed as the teaching/learning process. For that reason, also, some speculation about elements of instruction which go beyond the interview data is included in order to relate the data to some parts of learning theory.

It is hoped that refinement of the views reported here and in subsequent discussions and analyses of points found to be controversial, can be the basis for developing a common framework for conceptualizing the teaching/learning process on which specific improvements can be built.

SUMMARY AND RECOMMENDATIONS

1. Faculty views about the instructional process are very diverse. To an unknown extent this is an appropriate result of real, intrinsic differences in subject matter, but it also appears to depend on many other variables. Among them are tradition, differing skills and knowledge gained from experience and training, unexamined assumptions, organizational constraints outside the control of individual instructors, and lack of a common framework for conceptualizing the process.

2. The diversity of views could be dismissed by assuming that instruction is an art and hence only minimally amenable to planned improvement. It is recommended, however, that instruction be viewed instead as a process which can be

(1) analyzed into agreed-upon structural elements, (2) that the probable variables which indicate preferential methods of carrying out each element can be identified, and (3) that the selection and performance of proper methods can themselves be made a subject of instruction.

3. The most important first step toward designing and implementing effective actions which will help to improve instruction is the formulation by the faculty of an agreed-upon framework for conceptualizing the process.

4. Instructional improvement is an essential and major component of faculty development: formulation of such a framework and the resulting design of improvement actions should therefore be part of such a development program.

5. Different views about whether, and how, to prepare instructional "results-oriented" intentions or objectives, i.e. those which specify what the instructor intends the student to know and be able to do, will naturally be correlated to some extent with differences in disciplines being taught. Many differences, however appear to reflect subjective beliefs about human learning. Actions to improve instruction should include tentative identification by faculty efforts of variables which determine what kind of objectives are appropriate.

6. Even when directly asked, about 40% of survey respondents suggested no specific instructional techniques they would ideally use for achieving instructional intentions. Many suggestions were modest and conventional, even though respondents were asked to forget practical constraints. Responses to a question as to what actions might be taken to help instructors to improve instructional skills were similarly limited. Data do not permit a conclusion as to whether the instructional situation at De Anza is perceived as generally satisfactory or whether respondents have difficulty envisaging "radical" improvements

7. As with instructional intentions, there is a wide spectrum of opinion about how tests should be used to evaluate student learning, including the degree to which tests should be correlated with instructional intentions. This is another element of the teaching/learning process in which it would be helpful to identify variables, alternative testing methods, and desirable correlations between them.

INSTRUCTIONAL INTENTIONS

Sixteen respondents, out of 43, or about 40%, prepare and give students some "results-oriented" statements of what the instructor intends students to know and/or be able to do at the end of the course. Few, if any, statements obtained in the survey meet "purist" criteria for objectives. The statements tend to be one part of "process-oriented" statements describing how instructors intend to conduct the course (policies on attendance and grading, textbook chapters assigned, etc.).

Twelve respondents who do not write and distribute objectives do give students "process-oriented" statements which include general descriptions of course content (similar to catalog descriptions). Some of both the statements of objectives and general course descriptions merge into borderline cases difficult to classify.

Fifteen respondents give out no written statements of intentions in either sense.

Several instructors who do not prepare or distribute "results-oriented" statements of intentions said that they nevertheless had important "results-oriented" objectives, though, as these were described, they are not necessarily addressed to the subject matter of the course. For example, by maintaining rigorous course requirements and high academic standards, one instructor intends to develop in students the habit of meeting obligations, to increase their ability to meet responsibilities, to enable them to gain the pleasure which may come simply from acquiring any competency, even one not otherwise actually needed in a job or for conducting one's life. Conversely, some instructors who do not emphasize academic knowledge say they have such important objectives as improved skill at listening in order to understand another person's point of view, but do not distribute them to students nor even write them out.

Some instructors said that one of their objectives was the development of general problem-solving capability, that is, the ability to direct one's thinking effectively in order to develop a course of action to accomplish a specific result. No written statements obtained by the survey included this objective, however.

Thirty-eight respondents said they feel that their instructional intentions reflect what students realistically require:

For 2-year program	4
Four-year program	6
"Competencies for living"	8
Combination of above	4
Not identified	16
	38

Five respondents said they have scaled course requirements down.

Another view of instructional intentions was obtained from instructors' opinions as to why students need the competencies they intend them to get from their courses, without direct reference to whether they use written objectives or how they word them. Responses in this case tended to be "results-oriented", (i.e. intended changes in the students) as indicated by the summary below and to range from results which can be connected fairly closely to student behavior, to results in the form of knowledge possessed by the student. In the latter types, the presumed connection between knowledge and behavior is not always obvious.

Reasons Competencies are Needed (Paraphrased from actual responses)	Number of Times Cited
To qualify for subsequent courses (including transfer)	9
To qualify for a job	8
To make life more pleasurable (e.g. Golf, photography, sewing)	8
To conduct everyday affairs effectively (e.g. reading, arithmetic, speaking, directed (problem solving) thinking)	7
To think effectively about and contribute to accomplishing social change	3

Increased understanding	2
To cultivate the intellect	1
Intellectualism - knowledge of environment	1
Know methodology of discipline	1
To function in society (The discipline involved was not a basic skill such as reading, nor was thinking about and contributing to social change mentioned)	1
General enhancement of living (phrase paraphrased from questionnaire and not clarified)	1

Several respondents who doubt the value of preparing and distributing objectives feel that:

1. Students would be threatened by detailed objectives and their ability to learn would be diminished.

2. Detailed objectives would restrict what students might learn. (A variation: each student is an individual and therefore a common set of objectives for a class is impossible).

3. Objectives suggest undesirable spoonfeeding of students.

4. Students wouldn't understand the objectives until they completed the course.

5. In many courses students clearly know why they are there: it would be ridiculous to spell out the objectives.

The inquiry about instructional intentions thus confirms expectations that there is a wide range of opinions among faculty members about written objectives and about how they should be prepared. Differences in subject matter would naturally cause some of this diversity. Many survey responses, however, appear to reflect subjective beliefs about human learning and about what students can and should be expected to learn. These issues involve value judgments as well as facts and undoubtedly cannot be fully resolved. It seems likely, however, that actions to improve instruction should include the development, by faculty efforts, of criteria for determining such questions as the following:

What kinds of objectives, if any, are helpful for students? For instructors?
For what kinds of students?
In what subjects?
Under what conditions does the preparation of explicit objectives help the instructor to select techniques which will most efficiently and effectively help students to achieve what he intends them to accomplish in the course?

One of the issues underlying argument about objectives is whether they should specify what knowledge students are expected to acquire in a course or what behavior they will be capable of because they acquire such knowledge. The distinction is clouded because "behavior" is used to refer both to behavior which merely demonstrates the knowledge itself (answering test questions is behavior) and behavior which achieves a desired result in a job or one's life. Not surprisingly, the connection between knowledge and behavior is a key issue in psychology. Diverse views on what knowledge should be taught, and how, in order to best ensure a change in behavior - or whether such a

purpose is even proper - are therefore to be expected. It may, however, be useful for faculty members to develop criteria for identifying courses for which, as a contribution to improving instruction, it is clearly desirable to specify objectives in terms of competent behaviors (whether or not they can actually be observed at the end of the course). Such criteria would minimize the number of courses about which opinions can legitimately differ and allow us to concentrate efforts on improving the others. In an appendix to this report a statement of the issues of knowledge and behavior is summarized by quotations from an important book, Plans and the Structure of Behavior, as a possible starting point for clarifying how instructional intentions might be specified.

INSTRUCTIONAL TECHNIQUES

Techniques in Use

Talking about and reporting the kinds of instructional techniques in use is handicapped by the lack of common, agreed-upon set of identifiable techniques. How long does an instructor talk before a minilecture becomes a lecture? How much student participation constitutes discussion? Are questions by the instructor and answers by students, discussion? If instruction is to be treated primarily as an art for which people mysteriously have a gift in varying degrees, this lack is not serious. If it is to be treated as a process to be analyzed and for which improvements can be designed, the capability of being more precise about various techniques is needed.

The categories used in the table below are the product of several factors, such as the instructor's perception and memory of the techniques he principally employs, common understanding of terms used in the interview, what the interviewer heard and recorded. They therefore need to be treated cautiously:

Instructional Techniques	Number of Instructors Who Use the Technique*	
Discussions (plus minilectures) conducted by instructor and primarily based on:		
Work (other than reading) completed in or out of class	5	
Audio-visual materials, usually shown in class	1	
Demonstrations (including role-playing by students and/or instructor)	5	
Questioning by instructor and by students	6	17
Lectures (accompanied by demonstrations and assigned reading and problems		12
Laboratory work plus		
Lectures and demonstrations	7	
Discussions	1	8
Demonstrations/practice by students & instructor, with feedback (minimum lecture and discussion), e.g. sports, musical performances		5

*Several instructors cited more than one primarily used technique

Instructional Techniques (Cont'd)	Number of Instructors Who Use the Technique
Programmed texts	1
Auto-tutorial materials	1
Self-instructional modules	1

The limited use of the specific technique of "Discussion - Based on Audio-visual Material" should not be construed to mean that audio-visual material is little used. Its use appears to be widespread in conjunction with many techniques. Forty-two percent of the faculty interviewed reported extensive use of such equipment. Audio-tapes and the overhead projector are the two types of equipment which were most frequently employed. About one-fifth of the instructors interviewed indicated they would like the time and resources to improve and expand their use of audio-visual techniques and equipment. Only about 10% of those with whom we talked said that the use of such equipment was inappropriate for the specific course being discussed.

Survey data does not give information about why self-instructional modules, auto-tutorial materials, and programmed texts are little used. Many variables must influence the selection of particular techniques, among them the following:

Nature of the discipline
    Definable competencies, rules, or, as sometimes designated, Plans (see Appendix)
    Degree to which the body of knowledge is structured
Instructor's training, skill, experience
Motivation of majority of those who enroll
Other constraints: class size, available time, etc.

It is undoubtedly difficult to design an instructional process which will take optimal account of all variables.

Feedback (opportunities for learners to try out skills or grasp of concepts and get prompt information about how close they are to the expected results) is frequently cited as a theoretically important requirement for efficient learning. It is an important aspect of the Miller-Pribram-Galanter paradigm (see Appendix). The survey consequently sought faculty opinions about its use. The gap between theory and practice seems to be rather wide. The following instructional practices were given as examples of feedback. Not many appear to meet the theoretical requirements, although they are not therefore necessarily to be considered ineffectual:

Daily quizzes and immediate correction
Laboratory work
Tutoring, conferences, study groups
Weekly exams
Having students work together on problems and correct each other
Daily review in class of correct solutions of problems worked outside of class
In certain courses the students sometimes, using example of peers, can themselves compare what they do with what is needed.
Textbook examples problems with answers
Class discussion

Survey results do not, of course, answer the question as to whether, and under what conditions, theoretically valid feedback can be an important contribution to instructional effectiveness.

Perceived Need for Changes in Instructional Design

In response to a question about the need for significant changes in the instructional design they are using, 23 faculty members indicated that no significant changes (beyond important but lesser things such as textbook changes, etc.) were needed.

Ten said significant changes are being planned or carried out - but seven of these did not describe in detail what they are (comments such as "keeping files on accomplishments of individual students", "affective learning", "increased depth", were made). Eight respondents said significant changes are desirable, though not presently feasible, but seven of these didn't specify what the change should be beyond general comments.

"Ideal" Instructional Techniques

Respondents were also asked: "Forgetting practical constraints for a moment, what instructional techniques do you believe should ideally be used to enable students to learn from (the course) what you feel they should learn?". About 26 persons suggested both the techniques and related actions summarized below; 17, about 40%, suggested no specific techniques or actions:

Smaller classes, to increase instruction/student contact.
Decreased use of grades (as competition between students).
Self-instructional, self-pacing modules
A larger supply of video tapes to make it possible to update material more frequently
One-to-one tutoring
Computer-assisted instruction
Programmed instruction
More integration between two specific courses
Videotaping to provide students with feedback
More opportunities for student practice
Access to more students by TV
Paraprofessional assistants
Open-lab concept
Field work
Re-designed course which would teach directed (problem-solving) thinking in general more than the facts of the discipline

The fact that about 40% of the interviewees had no specific suggestions and that many suggestions were relatively modest and conventional, even discounting "practical constraints", may imply that instructional techniques are seen as generally satisfactory. On the other hand, these results may indicate that for some reason it is difficult for faculty members to envisage "radical" improvements. The data do not determine which inference is more accurate. It is perhaps significant, however, that several techniques which some might not even consider "radical" were not mentioned:

1. Directed independent study
2. Study directed at significant problems across disciplines, instead of arranged by disciplines.
3. Study based on and related to work experiences.

The second and third methods are even partially used at De Anza, by the Minicollege and the Community Education and Experience Center respectively, but these were not disucssed by any respondents who were not involved in them.

MOTIVATION

Perhaps because this term refers to several overlapping concepts, survey questions on motivation tended to be unproductive, except perhaps to call attention to the desirability of clarifying possible ambiguities involved. Carefully designed self-instructional modules that demand student performance may be ideal for motivating students who already want the competency being taught. Those who want credit, not competencies, may well prefer to sit passively in lectures and take their chances on the examinations. Specific "results-oriented" course objectives, when written explicitly in terms of the knowledge or skill to be gained, may well dishearten some students. Benefits of a college degree are not necessarily identical with the benefits of having certain skills and knowledge; the discrepancy students perceive (accurately or inaccurately) must influence how much he is "motivated" to study in specific courses. Some rough, individual cost-benefit "analysis" (probably made unconsciously and often made incorrectly) may always determine whether a person is "motivated" to take a certain sequence of actions; perhaps these "analyses" are the person's motivation. Humans can make such "analyses" by visualizing possible rewards and punishments, and so do not need immediate and actual ones. (They may, however, need feedback information to learn how to perform the actions and such information is sometimes equated with "rewards"). Sometimes a principal objective of a course is to "motivate" students to pursue the subject further in the future by emphasizing the "rewards" . Immediate "punishment" in the form of difficult assignments and high standards may defeat that purpose. Unless competency is perceived as desirable by a student, the use of arbitrary motivational devices to induce students to master skills and knowledge may be ineffective with many students. Such perception is more likely to occur if the competencies will in truth be useful to the student and not an arbitrary requirement.

Thus, in the area of motivation, also, the survey provides, not answers, but a reminder that careful analysis, clarification of terminology, and correlation with other elements of instruction, such as statement of instructional intentions, may be needed if instructional improvement is to be effective.

EVALUATION OF LEARNING

Advocates of the use of precise objectives contend that tests should be closely coordinated with objectives and that learning will be facilitated if students know in advance that this is the case. One purpose of this survey was to sample faculty opinions on testing, as a method of evaluating student learning, and in particular to determine how consciously instructors relate their tests to their instructional intentions.

The question was poorly worded. Still, the confusion which this question caused, and the many interesting discussions it provoked lead to the tentative conclusion that the link between instructional intentions and tests is for most instructors weakly forged and probably more subconscious than conscious. Nearly every instructor with whom we talked understood this question to mean that he or she was being asked whether students are informed in advance: (1)

how heavily tests would influence the student's grade in the course, (2) what proportion of correct answers would be correlated with the grade on the actual test, (3) how a student's performance would be connected to his grade in relation to the grades of all his classmates, No instructor, with whom we spoke, indicated a precise connection between his course intentions and his tests.

Some faculty feel that a test provokes competition among students, and that it is this "competition" which is essential for creating and maintaining motivation in students. A high level of motivation is then often related to the maintenance of high or rigorous standards. Others use tests to measure whether students have met the requirements of a specific standard. Theoretically, if all students in the class meet the standard, all students receive the highest grade. This view of testing is similar to that of some learning theorists who believe, at the minimum, that all students in a class should be brought to a specified level of mastery, i.e. if something is really worth knowing, why settle for learning only 65 or 85% of it, why not learn it all? These same theorists argue that the only acceptable competition in the learning process should be against the body of knowledge of skill level sought and not against other students.

The role of testing in the teaching/learning process is still largely unsettled. Mirroring this uncertainty, the instructors who took part in these interviews had tentative and amorphous views on the function of testing in their classes. Obviously, many variables influence faculty views. Among them are: the discipline being taught, specificity of instructional intentions, traditions, and assumptions about human learning. A number of instructors were intrigued by the subject of testing and indicated an avid interest in pursuing some of the issues further. Perhaps a good first step toward clearer thinking about testing would include opportunities to clarify terms and define some of these issues which, in their present uncertain state, perpetuate a good measure of the seemingly permanent confusion surrounding the teaching/learning process.

SUGGESTIONS FOR IMPROVEMENT

Each instructor was asked, at the end of the interview, what actions he or she felt might be taken by the College, the District, or the State Legislature, which would help instructors to improve instructional skills.

Most respondents thought immediately of many types of increased support for current activities and clarifying changes in support procedures. For example, a policy for replacing worn-out equipment and a clarification of whether the Learning Center or each division budgets for audio-visual materials were mentioned often. Explicit suggestions for improving instruction were rare, although there seems to be a fairly widespread general feeling that more opportunities of various kinds to interact with other faculty members and with administrators would probably contribute to such improvement. Wishes for such interaction, for more course preparation time, or for sabbatical time were rarely coupled with statements on exactly what should be done with it to achieve an improvement.

What does the scarcity of specific innovative suggestions mean: That faculty are generally satisfied with available instructional methodology? That information is lacking on which to base suggestions for potential innovations? That time to think about innovation is lacking? That the interview survey method is ill suited to obtaining specific suggestions for improvement?

Survey data do not answer these questions but once again suggest that if instruction is a process that can be analyzed and systematically improved, rather than an art which people possess in varying degrees, faculty members need carefully planned joint opportunities to study it, isolate its parts, identify its variables, and design practical actions for improving specific parts of the process.

The following table summarizes the suggestions:

Suggestions for Improvement of Instructional Skills	Number of times suggestion was made
More money, equipment, space, time, paraprofessional support, and typing support	13
In-service training in instruction including learning theory, preparation of behavioral objectives, coaching by division chairmen	5
Unclear suggestions - or none given	4
More flexible audio-visual support	3
More intra-faculty communication and faculty/staff communication	3
Opportunities to observe other instructors, including taking complete courses from them	2
Elimination of confusion over budgetary responsibility for LC support of instruction	2
Routine deprecation budgeting to pay for equipment replacement	2
Periodic, systematic review of performance of administrators by subordinates culminating in a vote on their adequacy	1
Enforced uniformity of coverage between sections of same class (especially when part of a sequence)	1
Peer and student evaluation of instruction	1
On-campus TV for large classes	1
Installation of instructional support systems (such as EDEX), with maintenance support and training in use, for large classes	1
Opportunities to visit instruction in the same disciplines on other campuses and at meetings	1
Enforcement of prerequisite	1
Smaller classes	1
Administration is too ponderous (Cut down on meetings)	1
Instructor would like to take courses at Stanford	1

Suggestions for Improvement of Instructional Skills (Cont'd)	Number of times suggestion was made
Brainstorm with faculty on ways to change	1
More time for instructional development	1

Appendix A

DE ANZA COLLEGE LEARNING CENTER

To: All faculty

From: Bill Keehn, Chet Platt

Re: De Anza College faculty interviews

In the next several weeks the Instructional Research Office will be conducting a series of faculty interviews. The purpose of these interviews is to identify the instructional techniques instructors have found to be effective with various subjects, to obtain their views on other instructional techniques, and to collect suggestions on how instruction can be further improved. Information from the interviews will be collated and analysed as an aid to developing feasible actions which will effectively help the De Anza faculty to improve instruction.

Responses to specific survey questions will be sought to provide a basic, common structure to the information collected. Comments which go beyond the questions are very much desired, however, and will be used to ensure that the questions do not give an unintentionally limited view of the teaching/learning process.

A representative sample of the faculty will be used for these interviews. Each interviewee will review a copy of the whole questionnaire, get any necessary clarifications from the interviewer, respond to the questions in sequence, and make additional comments. The interviewer will record the instructor's views on another copy of the questionnaire.

Responses are intended to be related to one course. Instructors teaching several courses in significantly different ways may be asked to participate in completing more than one questionnaire.

Confidentiality of individual responses will be fully maintained.

We look forward to speaking with many of you in the not too distant future.

You continuing support is very much appreciated.

SURVEY ON INSTRUCTIONAL TECHNIQUES

Instructor_____

Course_____

The purpose of this interview is to identify the instructional techniques instructors have found to be effective with various subjects, to obtain their views on other instructional techniques, and to collect suggestions on how instruction can be further improved. Information from the interview will be collated and analysed as an aid to developing feasible actions which will effectively help the De Anza Faculty to improve instruction.

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Responses are intended to be related to one course. Instructors teaching several courses in significantly different ways may be asked to participate in completing more than one questionnaire.

Confidentiality of individual responses will be fully maintained.

INSTRUCTIONAL TECHNIQUES

1. It is commonly felt that the instructional technique used in community colleges more often than any other is lecturing. Is this true for you in this course?

2. a. If so, why do you do so? (e.g. best way of accomplishing instructional intentions for the course, only feasible way in classes averaging____.)

   b. If not, what technique(s) do you use instead of, or in addition to, lecturing?

3. For this course audio-visual support (please specify the kind):

   a. Is extensively used.

   b. Would be used more frequently if preparation time and resources were available.

   c. Is moderately used and more is not needed.

   d. Is inappropriate

4. Forgetting practical constraints for a moment, what instructional techniques do you believe should ideally be used to enable students who enroll in the course to learn from it what you feel they should learn?

INSTRUCTIONAL INTENTIONS

5. a. If you give students a written statement of what they are expected to gain from this course, may a copy be obtained for use in compiling data on such statements?

   b. If you do not, what are your reasons for this?

   c. If you do not, (or if the written statement of your intentions needs amplification) can you classify what you intend to have your students learn in terms of the categories on the attachment (adopted from a set developed by a committee of college and university examiners)?

   d. If your instructional intentions are not compatible with the attached classifications, please describe them in terms you feel are suitable.

6. Would you say that your intentions in this course?

   a. Are what you believe students realistically require, - for a 2-year career program, a 4-year career (transfer) program, or general enhancement of competencies for living?

   b. Have been scaled down because of practical constraints (e.g. too wide a spread in beginning competencies of students, large classes, inadequate student motivation) from the competencies students actually will need for careers or living?

MOTIVATION

7. In your opinion, what are the reasons students need to have the competencies you intend them to gain from this course?

8. What requirements are students satisfying when they take this course (e.g. a 2-year career program, a 4-year career (transfer) program, general education.)

9. If this course were not required in any sense, what percent of the students who now enroll do you estimate would still enroll?

10. Please estimate the ratio between (1) the instructional time you devote in this course to motivating students (convincing them of the subject's interest or value to them) and (2) the time you devote to helping them to acquire information, skills, or attitudinal change (other than acceptance of the course).

11. For certain kinds of learning and/or for certain people, it appears to be essential for learners to have sufficient opportunities (in addition to tests) to try out the competencies they are expected to achieve and to get information about results and corrections quickly. In this course:

a. Such feedback is provided.

b. Would be desirable but is not feasible.

c. Is not appropriate.

12. Please identify what you use to evaluate a students' learning in this course instead of, or in addition to, the feedback method.

a. Student performance on tests, primarily identification, recall, or production of definite answers (True - False, multiple choice free, short answers, routine mathematical process, e.g. quadratic equations).

b. Student performance on paper and pencil tests demonstrating ability to devise and carry out a sequence of cognitive actions, analyse, synthesize, etc.

c. Student performance on non-paper-and-pencil demonstrations.

d. Your subjective estimate - without support from test results.

e. Student estimates.

f. Other.

13. a. Are your students informed at the beginning of the course (by your written statement of intentions or oral descriptions) what specific performance will be required of them in your tests?

b. If you do not relate your tests closely to your statement of instructional intentions, why is this?

14. As a result of your assessment of the level of student learning in this course, do you feel that:

a. No significant changes in instructional design (intentions, techniques, evaluation) are needed (everything can, of course, be improved).

b. Significant changes are currently being planned or carried out.

c. Significant changes are desirable but require a major effort not presently feasible. (Please comment)

SUGGESTIONS FOR IMPROVEMENT

15. What actions by De Anza or the district, legislative changes, or other things can you suggest which will help instructors to improve their instructional skill?

Appendix B

THE ISSUE OF INSTRUCTIONAL INTENTIONS

Opinions about the desirability of specifying instructional intentions and differences about how to prepare them are connected with an important issue in psychology. Instructional intentions are a significant part of, and closely related to, the rest of the complex process of instruction. Psychological theories are probably still too debatable to serve as precise guides to instructional improvement but it does seem desirable to analyze and discuss practical matters such as the best way, or even whether, to prepare objectives, against the backdrop of psychological thinking.

The psychological issue in question may be stated by quoting from an important book, Plans and the Structure of Behavior (G. A. Miller, E. Pribram, and K. H. Galanter, Holt, Rinehart and Winston, Inc. 1967):

> The problem is to describe how actions are controlled by an organism's internal representation of its universe. . . What an organism does depends on what happens around it. As to the way in which this dependency should be described, however, there are, as in most matters of modern psychology, two schools of thought. On the one hand are the optimists, who claim to find the dependency simple and straightforward. They model the stimulus-response relation after the classical, physiological pattern of the reflex arc and use Pavlov's discoveries to explain how new reflexes can be formed through experience. This approach is too simple for all but the most extreme optimists. . .
>
> Arrayed against the reflex theorists are the pessimists, who think that living organisms are complicated, devious, poorly designed for research purposes, and so on. They maintain that the effect an event will have upon behavior depends on how the event is represented in the organism's picture of itself and its universe. They are quite sure that any correlations between stimulation and response must be mediated by an organized representation of the environment, a system of concepts and relations within which the organism is located. A human being--and probably other animals as well--builds up an internal representation, a model of the universe, a schema, a simulacrum, a cognitive map, an Image. . .
>
> For reasons that are not entirely clear, the battle between these two schools of thought has generally been waged at the level of animal behavior. Edward Tolman, for example, has based his defense of cognitive organization almost entirely on his studies of the behavior of rats--surely one of the least promising areas in which to investigate intellectual accomplishments. Perhaps he felt that if he could win the argument with the simpler animal, he would win it by default for the more complicated ones. . . Tolman's position was put most simply and directly in the following paragraph:
>
> > (The brain) is far more like a map control room than it is like an old-fashioned telephone exchange. The stimuli which are allowed in are not connected by just simple one-to-one switches to the outgoing responses. Rather, the incoming impulses are usually worked over and elaborated in

> the central control room into a tentative, cognitive-like map of the environment. And it is this tentative map, indicating routes and paths and environmental relationships, which finally determines what responses, if any, the animal will finally release. . .

There is a criticism of the cognitive position that seems quite important and that has has never, so far as we know, received an adequate answer. . . that the cognitive processes Tolman and others have postulated are not, in fact, sufficient to do the job they were supposed to do. Even if you admit these ghostly inner somethings, say the critics, you will not have explained anything about the animal's behavior. Guthrie has made the point about as sharply as anyone:

> Signs, in Tolman's theory, occasion in the rat realization, or cognition, or judgment, or hypotheses, or abstraction, but they do not occasion action. In his concern with what goes on in the rat's mind, Tolman has neglected to predict what the rat will do. So far as the theory is concerned the rat is left buried in thought; if he gets to the foodbox at the end that is his concern, not the concern of the theory.

Perhaps the cognitive theorists have not understood the force of this criticism. It is so transparently clear to them that if a hungry rat knows where to find food--if he has a cognitive map with the food-box located on it--he will go there and eat. What more is there to explain? The answer, of course, is that a great deal is left to be explained. The gap from knowledge to action looks smaller than the gap from stimulus to action--yet the gap is still there, still indefinitely large. . .

Wolfgang Kohler, for example, has been subjected to the same kind of heckling. . . Kohler makes the standard cognitive assumption: once the animal has grasped the whole layout he will behave appropriately. Again, the fact that grasping the whole layout may be necessary, but is certainly not sufficient as an explanation of intelligent behavior, seems to have been ignored by Kohler. . . The present book is largely the record of prolonged and frequently violent--conversations about how that vacuum might be filled.

The authors summarize their view of the inadequacy of filling that vacuum with "the will" and with "the broader topic of motivation" into which, they note, "the will" has been "assimilated anonymously." They then suggest that an element, characterized as a Plan, is needed to fill the gap and suggest some relationship between Plans and Images:

> A Plan is any hierarchical process in the organism that can control the order in which a sequence of operations is to be performed.
>
> The Image is all the accumulated, organized knowledge that the organism has about itself and its world. . . It includes everything the organism has learned--his values as well as his facts--organized by whatever concepts, images, or relations he has been able to master.

. . . The central problem of this book is to explore the relation between the Images and the Plan.

--A Plan can be learned and so would be a part of the Image.

--The names that Plans have must comprise a part of the Image for human beings, since it must be part of a person's Image of himself that he is able to execute such-and-such Plans.

--Knowledge must be incorporated into the Plan, since otherwise it could not provide a basis for guiding behavior. Thus, Images can form part of a Plan.

--Changes in the Images can be effected only by executing Plans for gathering, storing, or transforming information.

--Changes in the Plans can be effected only by information drawn from the Images.

--The transformation of descriptions into instruction is, for human beings, a simple verbal trick.

Instructional intentions, or objectives, now tend to have a loose and uncertain relationship to the issue Miller, Pribram, and Galanter address. Their paradigm may, however, be a helpful way of considering how to improve statements of intentions and thereby to improve instruction. The correctness of their viewpoint need not be accepted; it is probably definite enough to enable those who doubt it--as well as those who question whether a change in behavior itself should be a goal of education--to improve and sharpen their opposing positions.

For example, it may be a useful exercise to translate the written or implicit intentions of a course into the following classifications, identify what intentions, if any, cannot be so classified, and tentatively decide what should be the optimum relationship between specific "Plan--intentions" and "Image-intentions:"

Students in this course will:

1. Acquire a (specified) Plan (including presumed, non-symbolic "plans" for motor skills) or a Metaplan (plan for making plans) in order to
   a. Qualify for a job, or
   b. Live a useful, happy life, or
   c. Use it in a subsequent course, or
   d. Enjoy the feeling of competency for its own sake

   and/or

2. Acquire or revise a (specified) Image
   a. In support of acquiring or applying a specified Plan.
   b. For the pleasure obtainable from the process of extending and interconnecting one's Images.

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